

OCCUPATIONAL INJURY AND DISEASE IN ALBERTA

Oil & Gas Exploration & Development 1994 to 1998



Upstream
Oil and Gas

Subsector #7

Alberta
HUMAN RESOURCES
AND EMPLOYMENT

July 1999

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OIL & GAS EXPLORATION & DEVELOPMENT

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1. Sub-Sector Description

Sub-Sector # 7: Oil/Gas Exploration/ Development- Upstream Operations

Oil & Gas Exploration & Development-upstream operations (Industry # 06300)

This industry covers all 'upstream' oil field activities of employers which generate revenue from the production and sale of crude oil and/or natural gas. This includes both the small independent producer and major integrated oil and gas companies.

Oil and gas companies direct/control/evaluate/supervise oil and gas exploration and development; however, they subcontract the actual field operations prior to the production stage (i.e. seismic, drilling). In effect, they are general contractors for this phase of the industry.

The operation of all upstream production/processing facilities are covered under this classification when conducted by the owner/producer.

Oil or gas marketing firms, companies which are not producers but purchase product from other producers and resell, are considered part of this industry. They take title to the product and generate revenue from the sale of crude oil or natural gas.

Large oil companies may become involved in all aspect of oil exploration, processing and sale. Smaller companies may become involved only in the production and/or sale. Other companies may become involved in oil exploration purely on a speculative basis. All such employers are covered under this industry.

Upstream production facilities include:

- oil/gas well, well head equipment
- flow lines/gathering systems tied into field processing facilities
- battery sites/compressors stations
- crude oil separators and natural gas dehydrators/treaters
- natural gas/sulfur processing plants
- heavy oil projects including steam generation
- other enhanced recovery methods

Gas processing plants are normally located in the vicinity of the producing fields, and are tied directly into gas well through a network of gathering systems. This is considered to be an upstream production activity by the industry and is a common activity of major producers. Gas plants incorporate process technology, similar to refineries and petrochemical plants, for the purpose of removing impurities such as sulfur and water prior to transmission to the market.

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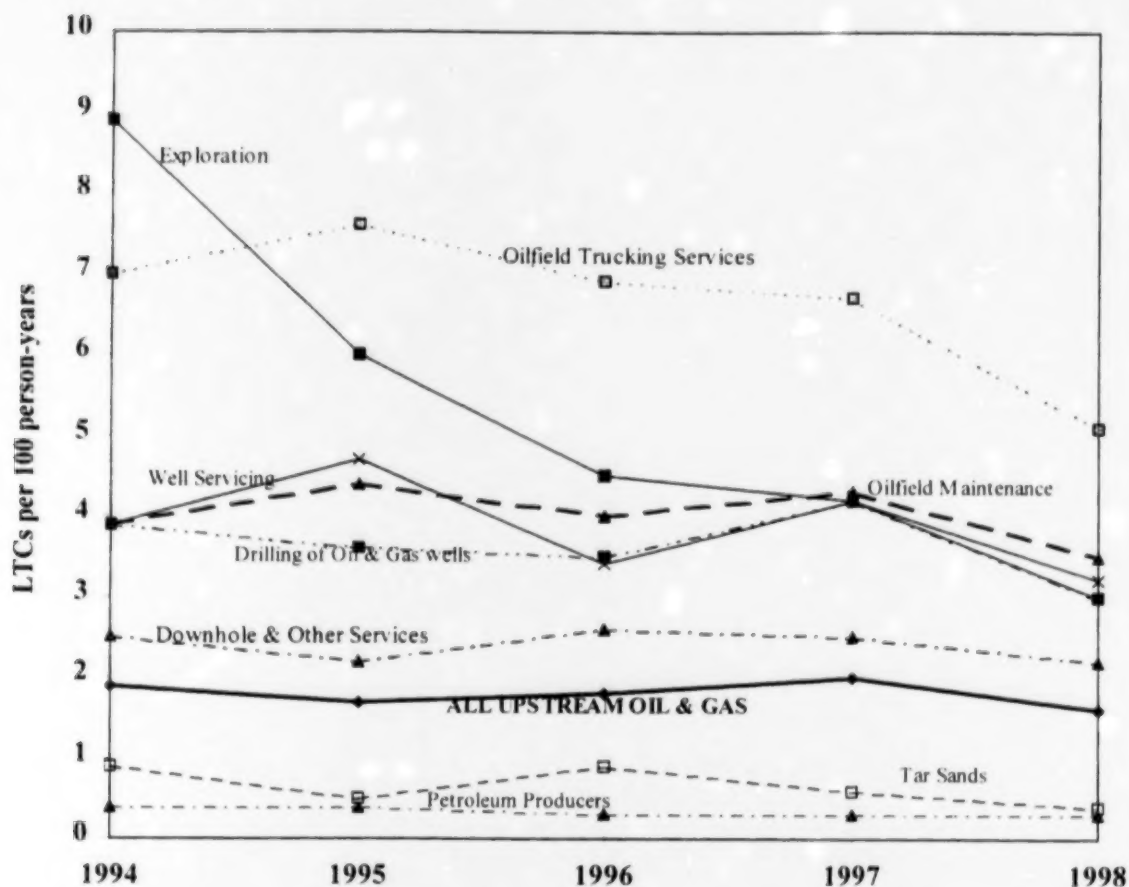
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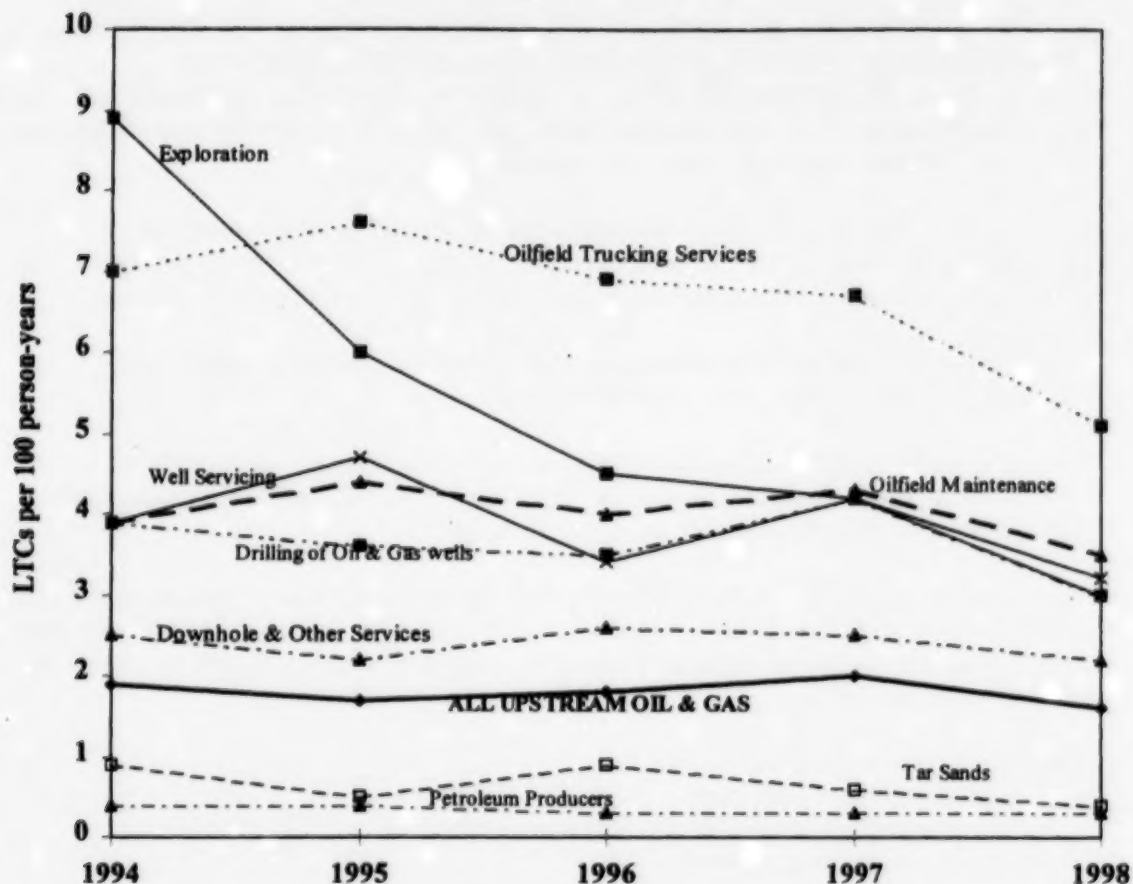
Lost-Time Claim Rates **All Upstream Oil & Gas Subsectors** **Alberta 1994-1998**



Lost-Time Claim Rate	1994	1995	1996	1997	1998
All Upstream Oil and Gas	1.9	1.7	1.8	2.0	1.6
Exploration	8.9	6.0	4.5	4.2	3.0
Oilfield Maintenance and Construction	3.9	4.4	4.0	4.3	3.5
Well Services with Service Rigs	3.9	4.7	3.4	4.2	3.2
Drilling of Oil and Gas	3.9	3.6	3.5	4.2	3.0
Downhole & Other Oilfield Services	2.5	2.2	2.6	2.5	2.2
Tar Sands	0.9	0.5	0.9	0.6	0.4
Petroleum Producers	0.4	0.4	0.3	0.3	0.3
Oilfield Trucking Services	7.0	7.6	6.9	6.7	5.1

2.

Lost-Time Claim Rates All Upstream Oil & Gas Subsectors Alberta 1994-1998



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Exploration	8.9	6.0	4.5	4.2	3.0
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Tar Sands	0.9	0.5	0.9	0.6	0.4
Petroleum Producers	0.4	0.4	0.3	0.3	0.3
Oilfield Trucking Services	7.0	7.6	6.9	6.7	5.1

3. LTC Rates & Duration Rates

Oil/Gas-Expl/Dev-Upstream Operations

Year	# of Accounts	Cost	Person Years	Days Lost	Duration Rate	LTCs	LTC Rate
94	1,911	\$895,161	36,485	3,639	10	133	0.4
95	1,647	\$792,146	34,980	3,085	9	136	0.4
96	1,831	\$673,641	33,410	1,890	6	107	0.3
97	2,179	\$1,810,837	33,765	3,430	10	100	0.3
98	2,274	\$643,090	36,596	2,788	8	111	0.3

3.1 LTC Rate by Size of Employer:1998

Size of Employer	# of Accounts	LTCs	Person - Years	LTC Rate
A: 0< PYs <=1	1,036	2	608	0.3
B: 1 < PYs < 5	792	4	1,226	0.3
C: 5 <= PYs < 10	75	2	539	0.4
D: 10 <= PYs < 20	86	5	1,166	0.4
E: 20 <= PYs < 40	65	6	1,835	0.3
F: 40 <= PYs < 100	41	4	2,576	0.2
G: PYs >=100	62	88	28,645	0.3
H: Invalid	117	N/A	0	N/A
Total	2,274	111	36,596	0.3

4. Analysis of The Lost-time Claims

4.1 Nature of Injury

LOST-TIME CLAIMS ALBERTA: 1994 TO 1998	OCCURRENCE YEAR					Total	
	94	95	96	97	98	Number	Percent
SPRAIN, STRAIN	51	44	40	37	45	217	37.0
FRACTURE & DISLOCATION							
FRACTURE	14	17	19	16	14	80	13.6
OTHER NATURE	4	2	.	2	1	9	1.5
SUBTOTAL	18	19	19	18	15	89	15.2
OTHER DISEASE							
HEARING LOSS,IMPAIRMENT	7	2	2	.	8	19	3.2
CONTAGIOUS,INFECTIOUS ILLNESS	.	12	.	.	.	12	2.0
OTHER NATURE	1	6	7	4	5	23	3.9
SUBTOTAL	8	20	9	4	13	54	9.2
BURN, SCALD-THERMAL	14	14	9	7	8	52	8.9
BRUISE, CONTUSION, CRUSHING	7	13	10	6	5	41	7.0
CUT, LACERATION, PUNCTURE	8	8	3	6	4	29	4.9
OTHER INJURY	1	.	5	7	7	20	3.4
CHEMICAL BURN	4	2	2	3	5	16	2.7
MULTIPLE INJURIES	4	3	2	4	2	15	2.6
INFLAMED/IRRITATED JOINTS,ETC.	5	4	.	3	3	15	2.6
ALL OTHER NATURES, UNS	13	9	8	5	4	39	6.6
Total	133	136	107	100	111	587	100.0

4.2 Part of Body Affected

LOST-TIME CLAIMS ALBERTA: 1994 TO 1998	OCCURRENCE YEAR					Total	
	94	95	96	97	98	Number	Percent
BACK							
LUMBAR (LOWER BACK)	25	16	5	1	3	50	8.5
OTHER PART	13	12	17	25	22	89	15.2
SUBTOTAL	38	28	22	26	25	139	23.7
OTHER TRUNK							
SHOULDER(S)	8	5	.	4	6	23	3.9
CHEST-INCLUDES INTERNAL ORGANS	1	4	5	3	2	15	2.6
ABDOMEN-INCLUDES INTERNAL ORGANS	.	12	.	1	1	14	2.4
HIP(S)-INCLUDES PELVIC ORGANS	3	3	1	2	3	12	2.0
OTHER PART	1	1	.	.	.	2	0.3
SUBTOTAL	13	25	6	10	12	66	11.2
ANKLE(S) & FOOT(FEET)-NOT TOES							
ANKLE(S)	5	11	7	9	13	45	7.7
FOOT(FEET)-NOT ANKLES OR TOES	5	9	5	1	1	21	3.6
SUBTOTAL	10	20	12	10	14	66	11.2
LEG(S)							
KNEE	9	3	8	8	10	38	6.5
LOWER LEG	2	2	4	3	1	12	2.0
OTHER PART	5	1	4	.	2	12	2.0
SUBTOTAL	16	6	16	11	13	62	10.6
OTHER HEAD, NECK							
EAR(S) - INTERNAL	8	2	1	.	8	19	3.2
NECK	2	4	7	1	3	17	2.9
OTHER PART	1	1	3	6	2	13	2.2
SUBTOTAL	11	7	11	7	13	49	8.3

(CONTINUED)

Part of Body Affected (continued)

LOST-TIME CLAIMS ALBERTA: 1994 TO 1998	OCCURRENCE YEAR					Total	
	94	95	96	97	98	Number	Percent
WRIST(S) & HAND(S) - NOT FINGERS							
HAND(S) - NOT WRISTS OR FINGERS	8	6	7	4	6	31	5.3
WRIST(S)	3	9	.	1	2	15	2.6
SUBTOTAL	11	15	7	5	8	46	7.8
MULTIPLE MAJOR BODY PARTS	8	5	10	11	7	41	7.0
EYE(S) - OPTIC NERVE, VISION	7	3	4	7	6	27	4.6
ARM(S) (ABOVE WRIST)	7	9	5	2	3	26	4.4
FINGER(S)	6	4	5	5	5	25	4.3
FACE	5	9	3	3	3	23	3.9
ALL OTHER PARTS, UNS	1	5	6	3	2	17	2.9
Total	133	138	107	100	111	587	100.0

4.3 Source of Injury

LOST-TIME CLAIMS ALBERTA: 1994 TO 1998	OCCURRENCE YEAR					Total	
	94	95	96	97	98	Number	Percent
BODILY MOTION	25	24	16	18	20	76	12.9
SOURCE-UNS	20	31	19	13	11	94	16.0
VEHICLES							
HIGHWAY VEHICLES (POWERED)	9	7	13	10	5	44	7.5
OTHER SOURCE	3	1	3	6	6	19	3.2
SUBTOTAL	12	8	16	16	11	63	10.7
SOURCE-NEC							
NOISE	6	2	1	.	8	17	2.9
INFECTIOUS/PARASITIC AGENTS	.	12	.	.	.	12	2.0
OTHER SOURCE	9	8	4	4	5	30	5.1
SUBTOTAL	15	22	5	4	13	59	10.1
WORKING SURFACES							
GROUND (OUTDOORS)	14	1	5	2	3	25	4.3
OTHER SOURCE	6	8	7	5	7	33	5.6
SUBTOTAL	20	9	12	7	10	58	9.9
METAL ITEMS-NEC							
PIPE AND FITTINGS	2	7	7	5	4	25	4.3
OTHER SOURCE	6	5	.	3	1	15	2.6
SUBTOTAL	8	12	7	8	5	40	6.8
BOXES, CONTAINERS	8	5	9	7	8	37	6.3
FLAME, FIRE, SMOKE	5	8	7	6	6	32	5.5
CHEMICALS	3	3	2	4	6	18	3.1
HANDTOOLS-UNPOWERED	7	4	4	3	.	18	3.1
MACHINES	2	2	1	5	3	13	2.2
ALL OTHER SOURCES	8	8	9	9	18	52	8.9
Total	133	138	107	100	111	587	100.0

4.4 Type of Event

LOST-TIME CLAIMS ALBERTA: 1994 TO 1998	OCCURRENCE YEAR					Total	
	94	95	96	97	98	Number	Percent
BODILY REACTION							
REACTION FROM INVOLUNTARY MOTION	13	10	8	7	6	44	7.5
REACTION FROM VOLUNTARY MOTION	12	7	7	8	8	42	7.2
OTHER TYPE	.	8	.	3	5	16	2.7
SUBTOTAL	25	25	15	18	19	102	17.4
OVEREXERTION							
LIFTING OBJECTS	10	11	7	9	13	50	8.5
OTHER TYPE	14	10	7	10	9	50	8.5
SUBTOTAL	24	21	14	19	22	100	17.0
VEHICLE INCIDENTS							
STRUCK BY OBJECTS	8	7	14	11	10	50	8.5
FALL ON SAME LEVEL	8	13	9	10	7	47	8.0
FALL ON SAME LEVEL	12	7	11	6	9	45	7.7
CONTACT NOXIOUS SUBSTANCE							
ABSORB NOXIOUS SUBSTANCES	4	2	1	4	6	17	2.9
INGEST NOXIOUS SUBSTANCES	.	12	.	.	.	12	2.0
OTHER TYPE	1	2	4	1	1	9	1.5
SUBTOTAL	5	16	5	5	7	38	6.5
TEMPERATURE EXTREMES							
TEMPERATURE EXTREMES	11	11	5	4	6	36	6.1
EVENT TYPE-NEC							
EXPLOSIONS	4	2	3	1	2	12	2.0
OTHER TYPE	6	2	1	1	9	19	3.2
SUBTOTAL	10	4	4	2	11	31	5.3
FALL FROM ELEVATION							
FALL FROM ELEVATION	9	4	4	3	6	26	4.4
CAUGHT IN, UNDER OR BETWEEN							
CAUGHT IN, UNDER OR BETWEEN	2	4	6	7	5	24	4.1
STRUCK AGAINST							
STRUCK AGAINST	4	5	3	1	3	16	2.7
ALL OTHER TYPES, UNS							
ALL OTHER TYPES, UNS	16	19	17	14	6	72	12.3
Total	133	136	107	100	111	587	100.0

4.5 Duration of Disability

LOST-TIME CLAIMS ALBERTA: 1994 TO 1998	OCCURRENCE YEAR					Total	
	94	95	96	97	98	Number	Percent
01 - 05 DAYS LOST	48	55	49	37	42	231	39.4
06 - 10 DAYS LOST	15	21	12	12	11	71	12.1
11 - 15 DAYS LOST	11	13	7	6	7	44	7.5
16 - 20 DAYS LOST	8	7	3	6	4	28	4.8
21 - 30 DAYS LOST	9	8	12	5	6	39	6.6
31 - 40 DAYS LOST	4	6	2	6	7	25	4.3
41 - 50 DAYS LOST	4	2	4	5	5	20	3.4
51 OR MORE DAYS LOST	23	15	11	16	15	80	13.6
DAYS LOST-UNSPECIFIED, 0	12	9	7	7	14	49	8.3
Total	133	136	107	100	111	587	100.0

5. Characteristics of The Injured Worker

5.1 Occupation of Injured Worker

LOST-TIME CLAIMS ALBERTA: 1994 TO 1998	OCCURRENCE YEAR					Total	
	94	95	96	97	98	Number	Percent
OIL & GAS FIELD, MINING							
ROTARY WELL DRILLING	7	7	2	8	8	32	5.5
OIL & GAS, MINING-NEC	5	7	5	7	7	31	5.3
FOREMEN-OIL & GAS, MINING	2	4	2	4	3	15	2.6
OTHER OCCUPATION	2	2	1	6	.	11	1.9
SUBTOTAL	16	20	10	25	18	89	15.2
FABRICATING, REPAIR							
MECHANICS-INDUSTRIAL, FARM MACHINERY	5	9	4	3	5	26	4.4
OTHER OCCUPATION	4	2	3	4	2	15	2.6
SUBTOTAL	9	11	7	7	7	41	7.0
PROCESSING							
DISTIL,SUBLIME,CARBONIZE-CHEMICALS	5	4	6	5	9	29	4.9
OTHER OCCUPATION	3	.	1	2	1	7	1.2
SUBTOTAL	8	4	7	7	10	36	6.1
CRAFTS, EQUIP. OPERATING-NEC							
UTILITIES EQUIPMENT OPERATING-NEC	11	6	3	2	8	30	5.1
OTHER OCCUPATION	1	.	1	1	1	4	0.7
SUBTOTAL	12	6	4	3	9	34	5.8
CLERICAL	7	10	2	3	6	28	4.8
PROFESSIONAL	8	4	2	6	5	25	4.3
CONSTRUCTION OCCUPATIONS	7	4	1	3	6	21	3.6
MANAGERIAL, ADMINISTRATIVE	2	5	3	1	6	17	2.9
ALL OTHER OCCUPATIONS, UNS	64	72	71	45	44	296	50.4
Total	133	136	107	100	111	587	100.0

5.2 Age of Injured Worker

LOST-TIME CLAIMS ALBERTA: 1994 TO 1998	OCCURRENCE YEAR					Total	
	94	95	96	97	98	Number	Percent
15-19 YEARS	1	1	3	3	2	10	1.7
20-24 YEARS	9	6	6	8	7	36	6.1
25-34 YEARS	41	42	25	22	33	163	27.8
35-44 YEARS	48	57	50	44	38	237	40.4
45-54 YEARS	24	20	18	18	22	102	17.4
55-64 YEARS	6	10	5	4	9	34	5.8
65 YRS AND OVER	3	.	.	1	.	4	0.7
AGE-UNSPECIFIED	1	1	0.2
Total	133	136	107	100	111	587	100.0

5.3 Length of Time Employed

LOST-TIME CLAIMS ALBERTA: 1994 TO 1998	OCCURRENCE YEAR					Total	
	94	95	96	97	98	Number	Percent
A. LESS THAN 1 MONTH	4	7	4	5	6	26	4.4
B. 1 MONTH TO < 6 MONTHS	18	10	12	8	13	61	10.4
C. 6 MONTHS TO < 1 YEAR	13	9	4	9	6	41	7.0
D. 1 YEAR OR MORE	82	91	64	56	58	351	59.8
E. TIME-UNSPECIFIED	16	19	23	22	28	108	18.4
Total	133	136	107	100	111	587	100.0

5.4 Gender of Injured Worker

LOST-TIME CLAIMS ALBERTA: 1994 TO 1998	OCCURRENCE YEAR					Total	
	94	95	96	97	98	Number	Percent
MALE	108	105	92	88	88	479	81.6
FEMALE	24	25	11	10	22	92	15.7
GENDER-UNSPECIFIED	1	6	4	2	3	16	2.7
Total	133	136	107	100	111	587	100.0

6. Number of Employers that Received/Renewed a CoR in 1998

	Certified Employers	Cert. & Uncert. (# of Accounts)	% Certified
Sub-Sector # 7			
Industry 06300-Oil/Gas Exploration & Development	3	2,274	0.1%
UPSTREAM OIL & GAS SECTOR	119	7,205	1.7%

7. Cost of Claims, Payroll and Premiums

	Occurrence Year				
	1994	1995	1996	1997	1998
Transaction Year					
1994	\$721,519				
1995	\$444,362	\$672,102			
1996	\$800,564	\$250,257	\$513,107		
1997	\$542,453	\$31,129	\$416,836	\$1,044,296	
1998	\$178,050	\$46,012	\$440,451	\$1,176,035	\$507,428
Total Cost	\$2,686,950	\$999,501	\$1,370,393	\$2,220,332	\$507,428

Total Payroll	\$1,236,461,059	\$1,240,235,860	\$1,252,341,070	\$1,350,889,821	\$1,426,160,373
Total Premiums	\$6,241,463	\$5,041,217	\$4,434,991	\$5,195,481	\$3,851,768

The above costs of claims, payroll and premiums are for the five year period 1994 through 1998. The data is as at July, 1999.

The claim cost amount reflect only paid costs on claims which have occurred in the five year period. These paid cost are tracked by year of occurrence and year that the cost were transacted.

The payroll have been totaled for each year. The premiums is the total of employer's premiums paid for each year.

8. Occupational Fatalities

An occupational fatality is the death of a worker which results from a work-related incident or exposure. Alberta Labour classifies occupational fatalities into three general types: motor vehicle incident, workplace incident and occupational diseases. Each is described in detail below.

Motor Vehicle Incident

Motor vehicle incident typically involve highway vehicles operating on public roads in which the fatally injured worker was either the driver or a passenger. This category also includes fatalities involving air plane crashes, train crashes, helicopter crashes. etc.

Workplace Incident

Fatal workplace incidents consists of cases in which the worker dies at a work site, or as a result of injuries sustained at a work site. It is this type of fatality that Alberta Labour may be responsible for investigating.

Occupational Diseases

Occupational disease fatalities consist mostly of recognized occupational disease, that is, disease known to be primarily or exclusively work-related (e.g. asbestosis, black lung disease). Occupational diseases are frequently diagnosed many years after the initial or crucial exposure to the toxic substance, and in such cases it is very difficult to determine when the fatal exposure occurred. Thus, the occupational disease category, should not be interpreted to reflect present work site hazardous conditions or exposures.

Each year the Workers' Compensation Board (WCB) accepts some occupational fatality claims for compensation. Claims accepted in a particular year does not imply the fatalities occurred in that year.

Description of Petroleum Producers Fatalities Accepted by The WCB Alberta, 1992-1998

Year	Occupational Disease		Motor Vehicle incident		Workplace Incident		Total	
	N	%	N	%	N	%	N	%
1992	0	0	0	0	3	100.0	3	100
1993	0	0	0	0	1	100.0	1	100
1994	0	0	0	0	0	0	0	0
1995	0	0	1	50.0	1	50.0	2	100
1996	0	0	1	100.0	0	0	1	100
1997	1	20.0	4	80.0	0	0	5	100
1998	1	33.3	1	33.3	1	33.3	3	100
Total	2	13.3	7	46.7	6	40.0	15	100

9. OHS Investigated Occupational Fatalities:1993-1998

YEAR:	1993	FILE:	0758
OCCUPATION:	Operator	AGE:	30
INDUSTRY:	Oil & Gas Producers, Exploration & Development		
EXPERIENCE:	Several years		

DESCRIPTION: A worker was fatally injured when a fire occurred at an oilfield battery processing facility. Information gained through the investigation indicates that the facility was totally destroyed by fire. It is, therefore, impossible to determine the exact cause of the fire at the location. The investigation involved company officials, witnesses who were near the scene, and testing was also carried out by numerous independent engineering and consulting companies. As a result, the company has put numerous preventive measures in place. They include both systems and procedural prevention. A training and safety services contractor has been retained to complete an audit of the company's safety program and work with the employer to institute a safety program.

YEAR:	1993	FILE:	0766
OCCUPATION:	Field Operator	AGE:	42
INDUSTRY:	Oil & Gas Producers - Exploration & Development		
EXPERIENCE:	17 years		

DESCRIPTION: A worker was fatally injured when the tractor he was operating rolled over. He was found under the tractor wheel assembly. The worker was cutting weeds on a gas lease. The tractor rolled over when driven over a drop off or sharp cut in ground elevation of 45.5 cm. Preliminary conclusions are that the worker forgot or did not know of the ground elevation difference which caused the tractor to roll over.

YEAR:	1993	FILE:	0767
OCCUPATION:	Oilfield Construction Crew Foreman	AGE:	53
INDUSTRY:	Oil & Gas Producers		
EXPERIENCE:	18 years		

DESCRIPTION: A worker was fatally injured from a fall at a new oil well. The worker was checking the flow of the of the well into a 400 barrel storage tank. The guage used to check the well flow was located on top of the storage tank, approximately 6 metres above the ground. There was evidence to show the worker was tired as he was working a double shift. He did not use the personal protective equipment available to him. The tank ladder was equipped with a fall arresting device. The worker did not wear the safety harness or don his Self Contained Breathing Apparatus, which were supplied for his use during tank guaging. The worker lost his footing on the vertical fixed ladder during his ascent or descent of the tank. The employers existing procedure on using such equipment have been reinforced and ammended to ensure that they are strictly adhered to during flow testing of oil wells.

YEAR:	1996	FILE:	0828
OCCUPATION:	Inspection, Maintenance of Measuring Equipment	AGE:	53
INDUSTRY:	Oil & Gas Exploration and Development - Upstream Operations		
EXPERIENCE:	Unknown		

DESCRIPTION: The self-employed contractor was in the process of "Gauging" (manually measuring fluid levels) Sour Crude Oil Storage Tanks through openings at the top of the tanks known as "Thief Hatches." The worker was conducting the measurement from an elevated work platform 13' 2" from the ground level. The elevated work platform had guard-rails and was connected to ground by a stairway with hand-rails. Another worker on site witnessed the self-employed contractor go up to the elevated work platform without respiratory protective equipment and/or personal monitoring equipment. The worker became exposed to hydrogen sulfide gases while taking fluid level measurements resulting in losing consciousness and falling over the guard-rail of the stair-way to the ground.

Appendix A: Terms, Definitions, and Formulas

Lost-Time Claim	A lost-time claim (LTC) is a claim for an occupational injury or disease which disables the worker beyond the day of injury. Included are claims for which wages compensation are paid, permanent disability claims, fatalities, and cases in which the injured worker is assigned light duties or other modified work.
Person-Years	Person-year estimates are calculated from wage and payroll data provided by account holders to the WCB. Alberta Labour uses these data to estimate. An average industry wage, and uses the average industry wage and employer payroll data to estimate person-years for each employer and each industry. One person-year is equivalent to one full-time worker working for one year, and can be assumed to equal 2,000 hours worked.
LTC Rate	<p>The lost-time claim (LTC) rate is calculated by dividing the number of lost-time claims by the person-year estimate, and multiplying the result by 100. The LTC rate represent the probability or risk of disabling injury or disease to a worker during a period of one year's work. Comparisons of LTC rates between industries, or between years, can be used to indicate increases, decreases, or differences in this risk.</p> $\text{LTC Rate} = \frac{\text{Number of LTCs} \times 100}{\text{Estimated Person-years}}$
Duration (Days Lost)	The duration of disability is the number of days following the injury or disease for which the worker was disabled, and unable to perform normal work duties. This information is obtained for this report from data on compensation days paid on each claim from WCB. Alberta Labour obtains these data on March 31 of the year following the claim year, and does not update the information, even though many injured workers continue to be disabled beyond this date. As a result, the duration information reported here underestimates the true impact of lost-time injury and disease.
Duration Rate	<p>The duration rate is calculated by dividing the number of work days lost (disability days) by the person-year estimate, and multiplying by 100. The result is expressed as "days lost per 100 person-years worked", and indicates, in part, the economic impact of occupational injury and disease. Duration rates are not recommended as reliable indicators of full economic cost. In addition, readers are warned that duration rates are highly unstable when based on only a few lost-time claims; it is recommended that the duration rate not be calculated based upon fewer than 30 lost-time claims.</p> $\text{Duration Rate} = \frac{\text{Disability Days} \times 100}{\text{Estimated Person-Years}}$
WCB Accepted Fatality	An occupational fatality is the death of a worker which result from a work-related incident or exposure and which has been accepted by the WCB for compensation. A fatality is counted in the year it is accepted.
NEC	Means "Not Elsewhere Classified"
UNS	Means "Unspecified"

Appendix B: Upstream Oil and Gas 1998 Industry Codes

<u>Sub-Sector 1:</u>	Exploration
Industries:	09200~Seismic Geophysical/Mineral Exploration 09201~Shot Hole Drilling
<u>Sub-Sector 2:</u>	Oilfield Maintenance and Construction
Industries:	06304~Oilfield Construction and/or Maintenance
<u>Sub-Sector 3:</u>	Well Servicing With Service Rigs
Industries:	09903~Well servicing with Service Rigs including Power Swivels
<u>Sub-Sector 4:</u>	Drilling of Oil and gas Wells
Industries:	09600~Drilling of Oil & Gas Wells
<u>Sub-Sector 5:</u>	Downhole & Other Oilfield Services
Industries	06305~Field Production Operators 06306~Vacuum Removal of Waste 09900~Mud Logging 09902~Pressure Cleaning Services 09904~Rathole Drilling and Rig Anchoring 09911~Oilfield Downhole Services 09915~Well Casing Services 09921~Servicing Christmas Trees On Oil Wells 09927~Liquid Waste Treatment & Disposal
<u>Sub-Sector 6:</u>	Tar Sands
Industries:	06600~Mining & Processing of Bituminous Sand 06601~Research/Development, Oil Sands and Heavy Oil Recovery
<u>Sub-Sector 7:</u>	Oil & Gas Exploration/Development
Industries:	06300~Oil and Gas Exploration & Development-Upstream Operations
<u>Sub-Sector 8:</u>	Oilfield Trucking Services
Industries:	50720~Oilfield Trucking Services